

CLAIMS

1. A flexible endless conveyor belt having a fold-over capability for conveying relatively-loose bulk material loads in an enclosed manner, said belt comprising a body of relatively uniform rectangular cross-section formed of flexible resilient elastomeric material and having a substantially greater width than thickness, the body having an upper load-carrying first surface and a lower non-load-carrying second surface, the second surface having a longitudinal grooved area located generally at about one-quarter the width of the belt from each edge of the belt thereby defining an outer portion of the belt between each edge and respective grooved area and a medial portion between the two grooved areas, said grooved areas providing a pair of hinged areas for rotating the outer portions of the belt inwardly upon itself to enclose a load on the medial portion of the first surface when rotated to a belt closed position.
2. A flexible endless conveyor belt as defined in claim 1, in which each grooved area includes at least one longitudinally extending first groove.
3. A flexible endless conveyor belt as defined in claim 2, wherein the belt has an intermediate reinforcing layer disposed between the first surface and the second surface.

4. A flexible endless conveyor belt as defined in claim 3, wherein the first groove extends substantially into the second surface.
- 5 5. A flexible endless conveyor belt as defined in claim 4, wherein each grooved area further comprises a second longitudinally extending groove and the second groove extends substantially parallel to the first groove and into the first surface.
- 10 6. A flexible endless conveyor belt as defined in claim 4, wherein the first and second longitudinal grooves run substantially parallel to the longitudinal edges of the belt.
- 15 7. A flexible endless conveyor belt as defined in claim 4, in which each longitudinal grooved area includes between two to five longitudinal grooves.
- 20 8. A flexible endless conveyor belt as defined in claim 4, wherein the first longitudinal groove is essentially V-shaped in cross section to provide a comparable bending moment when the outer portions are rotated inwardly about 180° or less on folding to an essentially closed position.

9. A flexible endless conveyor belt as defined in claim 8, wherein each grooved area comprises a unitary hinge line for repeated concurrent folding and unfolding of the outer portion of the belt over and from the load-carrying medial portion of said belt.

10. A flexible endless conveyor belt as defined in claim 4, wherein outer portions comprise similar equi-length cover flaps.

11. A flexible endless conveyor belt as defined in claim 10, in which each longitudinal grooved area includes four spaced-apart longitudinal grooves.

12. A flexible endless conveyor belt as defined in claim 10, in which each groove in the grooved area is V-shaped and has a depth less than the thickness of the second layer.

13. A flexible endless conveyor belt as defined in claim 10, in which each groove is box-shaped and has a depth less than the thickness of the second layer.

14. A flexible endless fold-over conveyor belt for conveying relatively-loose bulk material in an enclosed manner, said belt comprising a relatively uniform rectangular cross-sectional shape having a substantially greater width than thickness and formed of flexible resilient elastomeric material; said belt having a top load-carrying side and a bottom non-load-carrying side, said bottom side having two similar arrays of longitudinal grooves located adjacent the longitudinal edges of the belt, the two arrays of longitudinal grooves providing a pair of hinged areas for rotating the portions of the belt disposed between each longitudinal edge and array of grooves inwardly upon itself to enclose a load on the top side of the belt; the load being carried on a medial portion of the belt disposed between the two grooved arrays.

15. A flexible endless fold-over conveyor belt as defined in claim 14, wherein the two arrays each consist of one longitudinally extending groove.

16. A flexible endless fold-over conveyor belt as defined in claim 14, wherein the two arrays each consists of two to four V-shaped grooves in equispaced close arrangement adapted to provide a unitary hinged area.

16. A flexible endless fold-over conveyor belt as defined in claim 14, wherein each of the said two arrays comprise a unitary hinged area for repeated concurrent folding and unfolding of the two outer portions of the belt over and back from the load-carrying medial portion of said belt.

5

17. A flexible endless fold-over conveyor belt as defined in claim 14, wherein the belt has a reinforced carcass disposed between the top side and the bottom side and the two arrays of longitudinal grooves extend into the bottom side of the belt but terminate prior to the reinforced carcass.

10

17. A flexible endless fold-over conveyor belt as defined in claim 16, wherein the longitudinal grooves of said two similar spaced-apart arrays each consist of about four similar V-shaped grooves having a uniform depth substantially into the bottom side but free of contact with the reinforced carcass.

15

18. A flexible endless fold-over conveyor belt as defined in claim 17, further comprising two similar arrays of second longitudinal grooves located in the top load-carrying side of said belt and adjacent the longitudinal edges of said belt, the two arrays of second longitudinal grooves being disposed opposite the longitudinal grooves in the bottom non-load-

20

carrying side of the belt, whereby the longitudinal grooves and the second longitudinal grooves provide a pair of hinged areas for rotating the outer portions of said belt inwardly upon itself to enclose a load on the medial portion of the belt between the two sets of grooved arrays.